



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Northrup, King & Co.**

Whereas, THERE HAS BEEN PRESENTED TO THE  
**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'S1578'

In Testimony Whereof, I have hereunto set  
my hand and caused the seal of the Plant  
Variety Protection Office to be affixed  
at the City of Washington  
this 28th day of September in  
the year of our Lord one thousand nine  
hundred and seventy-seven

Attest:

*A. G. Rollin*

Commissioner  
Plant Variety Protection Office  
Grain Division  
Agricultural Marketing Service

*B. B. England*

Secretary of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
GRAIN DIVISION  
PLANT VARIETY PROTECTION OFFICE  
NATIONAL AGRICULTURAL LIBRARY  
BELTSVILLE, MARYLAND 20705

## APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME  S1578	FOR OFFICIAL USE ONLY PV NUMBER <b>7700078</b>	
2. KIND NAME  Soybeans	3. GENUS AND SPECIES NAME  Glycine Max	FILING DATE <b>6/27/77</b>	TIME <b>1:00</b> A.M. <input checked="" type="radio"/> P.M.
4. FAMILY NAME (BOTANICAL)  Leguminosae	5. DATE OF DETERMINATION  October 1975	FEE RECEIVED \$ <b>250.00</b> \$ <b>250.00</b> \$ <b>250.00</b>	DATE <b>6-27-77</b> <b>6-27-77</b> <b>9-7-77</b>
6. NAME OF APPLICANT(S)  Northrup King Co.	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)  P. O. Box 959 Minneapolis, Minn. 55440		8. TELEPHONE AREA CODE AND NUMBER  612-781-8011
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.)  Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION  Delaware	11. DATE OF INCORPORATION  1896

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Allenby L. White  
Northrup King Co.  
P. O. Box 959  
Minneapolis, Minn. 55440

## 13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed?  
(See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations?

☒ YES ☐ NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed?

☒ FOUNDATION☒ REGISTERED☒ CERTIFIED

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal?

☒ YES ☐ NO

16. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

May 18, 1977

(DATE)

(DATE)

(SIGNATURE OF APPLICANT)

(SIGNATURE OF APPLICANT)

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## INSTRUCTIONS

**GENERAL:** Send an original copy of the application, exhibits and \$250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, National Agricultural Library, Beltsville, Maryland 20705. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

## ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give (1), the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4), evidence of stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as; plant habit, plant color, disease resistance, etc.
- 14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of Practice.)

## EXHIBIT A

## ORIGIN AND BREEDING HISTORY OF S1578 SOYBEANS

- 1971 100 F<sub>4</sub> progeny rows from the cross "Amsoy Rps<sub>1</sub>" x "Clark 63" were grown. Amsoy Rps is a Race 1 Phytophthora-resistant line similar to Amsoy. One of these progeny rows, designated 101318, was selected on the basis of agronomic appearance and uniformity to be tested in a preliminary Maturity Group II trial.
- 1972 101318 was yield-tested at Washington and Hudson, Iowa. Based on yield, maturity, and uniformity, it was chosen as an experimental strain worthy of further testing.
- 1973 101318 was yield-tested at Hudson, Washington, and Dayton, Iowa.
- 1974 101318 was yield-tested at eight midwestern locations. It was examined for Phytophthora resistance (Race 1) in the Northrup King pathology laboratory and found to be resistant.
- 1974-75 A representative population of 101318 was grown. Since 101318 was heterogeneous for hilum color (50% yellow, 50% brown) 100 plants with brown hila were harvested individually to be grown as progeny rows in 1975.
- 1975 101318 was tested at nine midwestern locations. One hundred progeny rows were grown and carefully checked for uniformity for plant height, maturity, flower color, pubescence color, pod color, hilum color, and other characteristics. Any rows with off-type plants were discarded. The remaining rows were bulk harvested to produce pedigree seed.
- 1976 101318 was tested at eight midwestern locations. Breeder seed was produced from the pedigree seed produced in 1975. One hundred plants were harvested from this increase to initiate another cycle of pedigree seed production. The pedigree method of maintaining varietal purity will continue as long as the variety is produced.
- 1977 101318 was named S1578 and released to foundation seed growers.
- S1578 is stable and uniform for all normal descriptive characteristics. A very low frequency of variants would be expected through mutation, outcrossing, or mechanical mixture. These will be prevented from becoming a significant constituent of the variety through application of the time-proven pedigree method referred to above.

77-78

PV # 7700078

Exhibit 13B.

Soybean, 'S1578'

'S1578' is most similar to 'S1474' except 'S1578' is resistant to *Phytophthora megasperma*, Race 1; whereas, 'S1474' is susceptible.

Allen R. White

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## EXHIBIT B

## NOVELTY STATEMENT FOR S1578 SOYBEANS

S1578 is most similar to S1474 in maturity, seed coloration, and plant habit and appearance. S1578 can be differentiated from S1474 on the basis of reaction to Phytophthora megasperma, Race 1. S1474 is susceptible, S1578 is resistant.

Data contrasting S1492 soybeans from other Maturity Group II varieties.

	Color of			Phytophthora Race 1
	Pubescence	Flower	Hilum	
B216	G	W	Y	S
Wells	G	P	IB	R
Corsoy	G	P	Y	S
Amsoy	G	P	Y	S
Amsoy 71	G	P	Y	R
S1474	(B)	(P)	(Br)	S
Harcor	G	P	Y	R
Beeson	G	P	IB	R
SRF 200	G	P	Y	R
Harosoy	G	P	Y	S
Harosoy 63	G	P	Y	R
Marshall	G	P	IB	S
Lindarin	G	P	BF	S
Lindarin 63	G	P	BF	R
Hawkeye	G	P	IB	S
Hawkeye 63	G	P	IB	R
Provar	B	P	Br	S
Protana	G	P	IB	R
S1492	G	W	BF	S
S1578	(B)	(P)	(Br)	R

Key: G = Gray  
B = Brown  
W = White  
P = Purple

Y = Yellow  
IB = Imperfect Black  
Br = Brown  
Bf = Buff

S = Susceptible  
R = Resistant

NOTE: THERE ARE AT LEAST 67 ADDITIONAL VARIETIES  
IN THE II MATURITY GROUP. Rfs.

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
GRAIN DIVISION  
HYATTSVILLE, MARYLAND 20782  
**OBJECTIVE DESCRIPTION OF VARIETY**  
SOYBEAN (GLYCINE MAX)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Northrup King Company

Address (Street and No., or R.F.D. No., City, State, and ZIP Code)

P.O. Box 959  
Minneapolis, MN 55440

Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. SEED SHAPE: 1 = SPHERICAL 2 = FLATTENED 3 = ELONGATE 4 = OTHER (Specify)

2. SEED COAT COLOR: 1 = YELLOW 2 = GREEN 3 = BROWN 4 = BLACK 5 = LIGHT 6 = MEDIUM 7 = DARK  
SHADE: 1 = LIGHT 2 = MEDIUM 3 = DARK

3. SEED COAT LUSTER: 1 = DULL 2 = SHINY  
4. SEED SIZE: 1 = SMALL 2 = MEDIUM 3 = LARGE  
GRAMS PER 100 SEEDS 1.8

5. HILUM COLOR: 1 = BUFF 2 = YELLOW 3 = BROWN 4 = GRAY 5 = IMPERFECT 6 = BLACK 7 = OTHER (Specify)  
SHADE: 1 = LIGHT 2 = MEDIUM 3 = DARK

6. COTYLEDON COLOR: 1 = YELLOW 2 = GREEN  
7. LEAFLET SIZE (See Reverse): 1 = SMALL 2 = MEDIUM 3 = LARGE

8. LEAFLET SHAPE: 1 = OVATE 2 = OBLONG 3 = LANCEOLATE 4 = ELLIPTICAL 5 = OTHER (Specify)

9. LEAF COLOR (See Reverse): 1 = LIGHT GREEN 2 = MEDIUM GREEN 3 = DARK GREEN  
10. FLOWER COLOR: 1 = WHITE 2 = PURPLE 3 = OTHER (Specify)

11. POD COLOR: 1 = TAN 2 = BROWN 3 = BLACK  
12. POD SET: 1 = SCATTERED 2 = CONCENTRATED

13. PLANT PUBESCENCE COLOR: 1 = GRAY 2 = BROWN 3 = OTHER (Specify)  
SHADE: 1 = LIGHT 2 = MEDIUM 3 = DARK

14. PLANT TYPES (See Reverse): 1 = SLENDER 2 = BUSHY 3 = INTERMEDIATE  
15. PLANT HABIT: 1 = DETERMINATE 2 = INDETERMINATE 3 = OTHER (Specify)

16. HYPOCOTYL COLOR: 1 = GREEN 2 = PURPLE  
17. SEED PROTEIN: 1 = A 2 = B 3 = OTHER (Specify)

18. NUMBER OF DAYS TO FLOWERING (Place a zero in first box (e.g., 0 9 1) when days are 9 or less.) 1 = 00 2 = 0 3 = 1 4 = 11 5 = 111 6 = 111 7 = 111 8 = 111 9 = 111 10 = 111 11 = 111 12 = 111 13 = 111 14 = 111 15 = 111 16 = 111 17 = 111 18 = 111 19 = 111 20 = 111 21 = 111

19. MATURITY GROUP: 1 = 00 2 = 0 3 = 1 4 = 11 5 = 111 6 = 111 7 = 111 8 = 111 9 = 111 10 = 111 11 = 111 12 = 111 13 = 111 14 = 111 15 = 111 16 = 111 17 = 111 18 = 111 19 = 111 20 = 111 21 = 111

20. SIZE OF 10 DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT (Growth Chamber) AT 25° C. (Place a zero in first box (e.g., 0 2) when size is 9 mm. or less.) 1 = 00 2 = 0 3 = 1 4 = 11 5 = 111 6 = 111 7 = 111 8 = 111 9 = 111 10 = 111 11 = 111 12 = 111 13 = 111 14 = 111 15 = 111 16 = 111 17 = 111 18 = 111 19 = 111 20 = 111 21 = 111

21. DISEASE: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)  
BACTERIAL PUSTULE 0 BUD BLIGHT 0  
FROGEYE 0 STEM CANKER 1  
PHYTO-PHTHORA 2  
MILDEW 0  
DOWNY 0  
PURPLE STAIN 1  
POD AND STEM BLIGHT 1  
TARGET SPOT 0  
BROWN STEM ROT 0  
BROWN SPOT 1  
ROOT KNOT 0  
OTHER (Specify) 00005

FOR OFFICIAL USE ONLY

PLPO NUMBER

7700078

VARIETY NAME OR TEMPORARY DESIGNATION

S1578

## EXHIBIT D

## ADDITIONAL DESCRIPTION OF S1578 SOYBEANS

Seed Characteristics. S1578 seeds have yellow cotyledons and shiny, yellow seed coats. Hilum color is a medium brown; it is darker than buff, but somewhat lighter than the deep brown of S1474. Seed size is larger than S1474 or Corsoy and smaller than Beeson, but about the same as Amsoy 71. Oil percentage averaged 22.9% in 1976, compared to 21.4 for S1474, 22.6 for Amsoy 71, and 22.2 for Beeson. Protein percentage averaged 39.3%, compared to 40.5 for S1474, 37.8 for Amsoy 71, and 40.8 for Beeson.

Plant Characteristics. S1578 plants are rather short, averaging about 8 cm shorter than S1474 or Corsoy, and somewhat branching in growth habit. Plants lodge somewhat less than those of Corsoy or S1474, but somewhat more than Wells or Beeson. Maturity is about the same as Beeson, or later than S1474, Corsoy, Wells, or Amsoy 71. S1578 carries the Rps<sub>1</sub> gene for resistance to Race 1 of Phytophthora root rot.

1515781

7700078

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant shape	S1474	Petiole angle	S1474
Leaf shape	S1474	Seed size	Amsoy 71
Leaf color	S1474	Seed shape	S1474
Leaf surface	S1474	Seedling pigmentation	S1474

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY:

VARIETY	NO. OF DAYS TO MATURITY	LODGING SCORE	PLANT HEIGHT	LEAF SIZE		CONTENT		AVERAGE NO. OF PODS PER PLANT	IODINE NO.
				Width	Length	Protein	Oil		
Submitted	131	2.1	96 cm			39.3	22.9 %	18	
Name of similar variety									
S1474	129	2.4	104 cm			40.5	21.4	19	

## INSTRUCTIONS

**GENERAL:** The following publications may be used as a reference aid for completing this form:

1. Scott, Walter O. and Samuel R. Aldrich, 1970, Modern Soybean Production, The Farmer Quarterly.
2. Norman, A. G., 1963, The Soybean: Genetics, Breeding, Physiology, Nutrition, Management.
3. McKie, J. W., and K. L. Anderson, 1970, The Soybean Book.

**LEAF COLOR:** Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following Soybean varieties may be used as a guide to identify the colors listed on the form.

COLOR	VARIETY
Light Green	"Ada"
Medium Green	"Wilkin"
Dark Green	"Swift"

**LEAF SIZE:** The following varieties may be used as a guide to identify the relative size leaves.

SIZE	VARIETY
Small	"Amsoy"
Medium	"Bonus"
Large	"Anoka"

**PLANT TYPE:** The following varieties may be used as a guide to identify the plant type.

TYPE	VARIETY
Slender	"Vansoy"
Intermediate	"Wirth"
Bushy	"Adelphia"

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